

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Takuya Tamatani et al. Art Unit :
Serial No. : Examiner :
Filed : Herewith
Title : CELL SURFACE MOLECULE MEDIATING CELL ADHESION AND SIGNAL
TRANSMISSION

MAIL STOP PATENT APPLICATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Under 35 USC §120, this application relies on the earlier filing date of U.S. Application Serial Number 09/383,551, filed on August 26, 1999. The references listed on the enclosed form PTO-1449 were submitted to and/or cited by the Office in the prior application and, therefore, are not provided in this application.

Applicants also wish to bring to the Examiner's attention the following co-pending applications, each of which is assigned to the assignee of the present application and contains at least one overlapping inventor with the present application:

U.S. Application No. 09/383,551, filed August 26, 1999;
U.S. Application No. 09/561,308, filed April 28, 2000;
U.S. Application No. 10/107,828, filed March 26, 2002;
U.S. Application No. 10/107,868, filed March 26, 2002;
U.S. Application No. 10/107,907, filed March 26, 2002;
U.S. Application No. 10/301,056, filed November 21, 2002;
U.S. Application No. 09/830,548, filed June 12, 2001;
U.S. Application No. 09/859,053, filed May 16, 2001;
U.S. Application No. 10/625,105, filed July 22, 2003;
U.S. Application No. 10/704,426, filed November 7, 2003;
U.S. Application No. 10/704,030, filed November 7, 2003;
U.S. Application No. 10/704,072, filed November 7, 2003;

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Page : 2 of 2

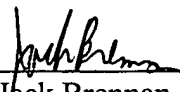
Attorney's Docket No.: 14539-004011 / JF-52US-D5-
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U.S. Application No. 10/704,056, filed November 7, 2003; and
a continuation of U.S. Application No. 10/301,056, filed November 21, 2002 (serial
number not yet assigned), filed this same day in the U.S. Patent & Trademark Office.

This statement is being filed with the application. Please apply any charges or credits to
Deposit Account No. 06-1050, referencing Attorney Docket No. 14539-004011.

Respectfully submitted,

Date: November 25, 2003



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| Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b)) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Docket No. 14539-004011 | Application No. |
| | Applicant Takuya Tamatani et al. | | |
| | Filing Date Herewith | | Group Art Unit |

| U.S. Patent Documents | | | | | | | |
|-----------------------|-----------|-----------------|------------------|---------------------|-------|----------|----------------------------|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Patentee | Class | Subclass | Filing Date If Appropriate |
| | AA | 5,484,892 | 01/16/1996 | Tedder et al. | | | |
| | AB | 5,506,126 | 04/09/1996 | Seed et al. | | | |
| | AC | 5,521,288 | 05/28/1996 | Linsley et al. | | | |
| | AD | 5,770,197 | 06/23/1998 | Linsley et al. | | | |
| | AE | 5,914,112 | 06/22/1999 | Bednar et al. | | | |
| | AF | 6,075,181 | 06/13/2000 | Kucherlapati et al. | | | |
| | AG | 20020164697 | 11/07/2002 | Coyle et al. | | | |
| | AH | 20020177191 | 11/28/2002 | Kroczek | | | |
| | AI | 20020182667 | 12/05/2002 | Kroczek | | | |

| Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | | |
|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
| | | | | | | | Yes | No |
| | AJ | WO 95/33770 | 12/14/1995 | WIPO | | | | |
| | AK | WO 97/26912 | 07/31/1997 | WIPO | | | | |
| | AL | WO 98/11909 | 03/26/1998 | WIPO | | | | |
| | AM | WO 98/19706 | 05/14/1998 | WIPO | | | | |
| | AN | WO 98/37415 | 08/27/1998 | WIPO | | | | |
| | AO | WO 98/38216 | 09/03/1998 | WIPO | | | | |
| | AP | WO 98/45331 | 10/15/1998 | WIPO | | | | |
| | AQ | WO 00/19988 | 04/13/2000 | WIPO | | | | |
| | AR | WO 00/46240 | 08/10/2000 | WIPO | | | | |
| | AS | WO 00/67788 | 11/16/2000 | WIPO | | | | |
| | AT | WO 01/08700 | 02/08/2001 | WIPO | | | | |
| | AU | WO 01/12658 | 02/22/2001 | WIPO | | | | |
| | AV | WO 01/15732 | 03/08/2001 | WIPO | | | | |
| | AW | WO 01/18022 | 03/15/2001 | WIPO | | | | |
| | AX | WO 01/21796 | 03/29/2001 | WIPO | | | | |

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| | Applicant Takuya Tamatani et al. | | |
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| Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | | |
|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|----|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
| | | | | | | | Yes | No |
| | AY | WO 01/32675 | 05/10/2001 | WIPO | | | | |
| | AZ | WO 01/64704 | 09/07/2001 | WIPO | | | | |
| | AAA | WO 01/87981 | 11/22/2001 | WIPO | | | | |
| | ABB | WO 02/44364 | 06/06/2002 | WIPO | | | | |
| | ACC | WO 02/70010 | 09/12/2002 | WIPO | | | | |
| | ADD | WO 02/76504 | 10/03/2002 | WIPO | | | | |
| | AEE | AU 13320/99 | 04/01/1999 | Australia | | | | |
| | AFF | DE 19821060 | 04/15/1999 | Germany | | | | |
| | AGG | EP 0 984 023 | 03/08/2000 | EPO | | | | |
| | AHH | EP 1 125 585 | 08/22/2001 | EPO | | | | |
| | AII | JP 11-228442 | 08/24/1999 | Japan | | | Abstract | |
| | AJJ | JP 2000-154151 | 06/06/2000 | Japan | | | Abstract | |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|---|
| Examiner Initial | Desig. ID | Document |
| | AKK | Aicher et al., "Characterization of Human Inducible Costimulator Ligand Expression and Function," J. IMMUNOL., 164(9):4689-4696 (2000) |
| | ALL | Bajorath "A molecular model of inducible costimulator protein and three-dimensional analysis of its relation to the CD28 family of T cell-specific costimulatory receptors," J. MOL. MODEL. 5:169-176 (1999) |
| | AMM | Beier et al., "Induction, binding specificity and function of human ICOS," EUR. J. IMMUNOL., 30(12):3707-3717 (2000) |
| | ANN | Bensimon et al., "Human lupus anti-DNA autoantibodies undergo essentially primary V kappa gene rearrangements," EMBO J. 13(13):2951-62 (1994) |
| | AOO | Brodie et al., "LICOS, a primordial costimulatory ligand?" CURRENT BIOLOGY, 10(6):333-336 (2000) |
| | APP | Buonfiglio et al., "Characterization of a novel human surface molecule selectively expressed by mature thymocytes, activated T cells and subsets of T cell lymphomas," EUR. J. IMMUNOL., 29(9):2863-2874 (1999) |
| | AQQ | Buonfiglio et al. "The T cell activation molecule H4 and the CD28-like molecule ICOS are identical," EUR. J. IMMUNOL., 30:3463-3467 (2000) |
| | ARR | Cameron "Recent advances in transgenic technology" MOLECULAR BIOTECHNOLOGY 7:253-65 (1997) |
| | ASS | Chambers, "The expanding world of co-stimulation: the two-signal model revisited," TRENDS IN IMMUNOLOGY, 22(4):217-223 (2001) |
| | ATT | Cocks et al. "A novel receptor involved in T-cell activation," NATURE, 376:260-263 (July 20, 1995) |
| | AUU | Coyle et al., "The CD28-Related Molecule ICOS Is Required for Effective T Cell-Dependent Immune Responses," IMMUNITY, 13:95-105, (2000) |

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| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|--|
| Examiner Initial | Desig. ID | Document |
| | AVV | Dong et al., "Cutting Edge: Critical Role of Inducible Costimulator in Germinal Center Reactions," J. IMMUNOL., 166(6):3659-3662 (2001) |
| | AWW | Dong, "ICOS co-stimulatory receptor is essential for T-cell activation and function," NATURE 409(6816):97-101 (2001) |
| | AXX | Goding, "Monoclonal Antibodies: Principles and Practice," 2 nd Edition, Academic Press, Orlando, Florida, Chapter 8, pages 281-293 (1986) |
| | AYY | Goni et al., "Structural and idiotypic characterization of the L chains of human IgM autoantibodies with different specificities," J. Immunol. 142(9):3158-63 (1989) |
| | AZZ | Gonzalo et al., "The Related Molecules CD28 and Inducible Costimulator Deliver Both Unique and Complementary Signals Required for Optimal T Cell Activation," J. IMMUNOL., 166(1):1-5 (2001) |
| | AAAA | Guo et al., "Stimulatory Effects of B7-Related Protein-1 on Cellular and Humoral Immune Responses in Mice," J. IMMUNOL., 166(9):5578-5584 (2001) |
| | ABBB | Harlow and Lane, "Antibodies: A Laboratory Manual," Cold Spring Harbor Laboratory, page 285 (1988) |
| | ACCC | Hanzawa et al., "Characteristics of a TTH1 antibody which blocks an unknown adhesion phenomenon," PROCEEDINGS OF THE JAPANESE SOCIETY FOR IMMUNOLOGY, Vol. 24, Abstract No. W17-13 (1994) [ORIGINAL JAPANESE AND ENGLISH LANGUAGE TRANSLATION] |
| | ADDD | Heyeck et al. "Developmental regulation of a murine T-cell-specific tyrosine kinase gene, Tsk," PROC. NATL. ACAD. SCI. USA, Vol. 90, pp. 669-673 (1993) |
| | AEEE | Houdebine "Production of pharmaceutical proteins from transgenic animals" J. BIOTECHNOL. 34:269-87 (1994) |
| | AFFF | Hutloff et al. "ICOS is an inducible T-cell co-stimulator structurally and functionally related to CD28," NATURE 397:263-266 (1999) |
| | AGGG | Iiyama et al., "The role of inducible co-stimulator (ICOS)/B7-related protein-1 (B7RP-1) interaction in the functional development of Peyer's patches," IMMUNOLOGY LETTERS, In Press, Uncorrected Proof available online April 11, 2003, http://www.sciencedirect.com/science/journal/01652478 |
| | AHHH | Ishikawa et al., "Prediction of the Coding Sequences of Unidentified Human Genes. X. The Complete Sequences of 100 New cDNA Clones from Brain Which Can Code for Large Proteins <i>in vitro</i> ," DNA RESEARCH, 5:169-176 (1998) |
| | AIII | Kappel et al. "Regulating gene expression in transgenic animals" CURRENT OPINION IN BIOTECHNOLOGY 3:548-53 (1992) |
| | AJJJ | Kopf et al., "Inducible Costimulator Protein (ICOS) Controls T Helper Cell Subset Polarization after Virus and Parasite Infection," J. EXP. MED., 192(1):53-61 (2000) |
| | AKKK | Kuchroo et al. "B7-1 and B7-2 costimulatory molecules activate differentially the Th1/Th2 developmental pathways: Application to autoimmune disease therapy," CELL, 80:707-718 (March 10, 1995) |
| | ALLL | Ling et al., "Identification of GL50, a Novel B7-Like Protein That Functionally Binds to ICOS Receptor," J. IMMUNOL., 164(4):1653-1657 (2000) |
| | AMMM | Mages et al. "Molecular cloning and characterization of murine ICOS and identification of B7h as ICOS ligand," EUR. J. IMMUNOL. 30:1040-1047 (2000) |
| | ANNN | Marguet et al. "cDNA Cloning for Mouse Thymocyte-activating Molecule," THE JOURNAL OF BIOLOGICAL CHEMISTRY, Vol. 267, No. 4, pp. 2200-2208 (1992) |
| | AOOO | McAdam, "ICOS is critical for CD40-mediated antibody class switching," NATURE 409(6816):102-105 (2001) |
| | APPP | McAdam, "Mouse Inducible Costimulatory Molecule (ICOS) Expression Is Enhanced by CD28 Costimulation and Regulates Differentiation of CD4 ⁺ T Cells," J. IMMUNOL., 165(9):5035-5040 (2000) |
| | AQQQ | McAdam et al., "Mouse inducible costimulatory (ICOS) molecule expression is increased by CD28 costimulation and regulates development of Th2 cells," FASEB JOURNAL, 14(6):A1169 (2000) |
| | ARRR | Mueller, "T cells: A proliferation of costimulatory molecules," CURR. BIOL. 10(6):R227-R230 (2000) |

| | |
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| | | Filing Date Herewith | Group Art Unit |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|---|
| Examiner Initial | Desig. ID | Document |
| | ASSS | Mullins et al. "Expression of the DBA/2J Ren-2 gene in the adrenal gland of transgenic mice" EMBO J., 8:4065-72 (1989) |
| | ATTT | Mullins et al. "Fulminant hypertension in transgenic rats harbouring the mouse Ren-2 gene" NATURE, 344:541-44 (1990) |
| | AUUU | Mullins et al. "Transgenesis in nonmurine species" Hypertension 22:630-33 (1993) |
| | AVVV | Niemann "Transgenic farm animals get off the ground" TRANSGENIC RESEARCH, 7:73-75 (1998) |
| | AWWW | Nojima et al. "The 4F9 antigen is a member of the tetra spans transmembrane protein family and functions as an accessory molecule in T cell activation and adhesion," CELLULAR IMMUNOLOGY, 152:249-260 (1993) |
| | AXXX | Nurieva et al., "Inducible costimulator is essential for collagen-induced arthritis," J. CLIN. INVEST. 111(5):701-06 (2003) |
| | AYYY | Overbeek "Factors affecting transgenic animal production," Transgenic Animal Technology, A Laboratory Handbook 96-98 (1994) |
| | AZZZ | Özkaynak et al., "Importance of ICOS-B7RP-1 costimulation in acute and chronic allograft rejection," NATURE IMMUNOLOGY 2(7):591-596 (2001) |
| | AAAAA | Pech et al., "A large section of the gene locus encoding human immunoglobulin variable regions of the kappa type is duplicated," J. Mol Biol. 183(3):291-9 (1985) |
| | ABBBB | Poster, Kyoto International Conference Hall, Takaragaike Sakyo-ku, Kyoto, JAPAN (November 30, 1994) [ORIGINAL JAPANESE AND ENGLISH LANGUAGE TRANSLATION] |
| | ACCCC | Redoglia et al. "Characterization of H4: a mouse T lymphocyte activation molecule functionally associated with the CD3/T cell receptor," EUR. J. IMMUNOL., 26:2781-2789 (1996) |
| | ADDDD | Riley et al., "ICOS Costimulation Requires IL-2 and Can Be Presented by CTLA-4 Engagement," J. IMMUNOL., 166(8):4943-4948 (2001) |
| | AEEEE | Robert et al. "Antibody Cross-Linking of the Thymocyte-Specific Cell Surface Molecule CTX Causes Abnormal Mitosis and Multinucleation of Tumor Cells," EXPERIMENTAL CELL RESEARCH, 235:227-237 (1997) |
| | AFFFF | Sakamoto et al., "AILIM/ICOS: its expression and functional analysis with monoclonal antibodies," HYBRIDOMA AND HYBRIDOMICS, 20(5):293-303 (2001) |
| | AGGGG | Sato et al. (2000) "Up-regulation of inducible co-stimulator (ICOS) expression and its regulation of cytokine production in inflammatory bowel disease," GASTROENTEROLOGY, 118(4):A662 |
| | AHHHH | Sharpe "Analysis of lymphocyte costimulation <i>in vivo</i> using transgenic and 'knockout' mice," CURRENT OPINION IN IMMUNOLOGY, 7:389-395 (1995) |
| | AIIII | Sigmund "Are studies in genetically altered mice out of control?" ARTERIOSCLER. THROMB. VASC. BIOL., 20:1425-29 (2000) |
| | AJJJJ | Swallow et al., "B7h, a Novel Costimulatory Homolog of B7.1 and B7.2, Is Induced by TNF α ," IMMUNITY, 11:423-432, (1999) |
| | AKKKK | Tafuri et al., "ICOS is essential for effective T-helper-cell responses," NATURE 409(6816):105-109 (2001) |
| | ALLLL | Tai et al. "A role for CD9 molecules in T cell activation," J. EXP. MED., 184:753-758 (August 1996) |
| | AMMMM | Tamatani et al., "Characteristics of an antibody which induces an ICAM-1-LFA-1-independent adhesion pathway," PROCEEDINGS OF THE JAPANESE SOCIETY FOR IMMUNOLOGY, Vol. 23, Abstract No. H-160 (1993) [ORIGINAL JAPANESE AND ENGLISH LANGUAGE TRANSLATION] |
| | ANNNN | Tamatani et al. "AILIM/ICOS: a novel lymphocyte adhesion molecule," INTERNATIONAL IMMUNOLOGY, 12(1):51-55 (2000) |

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|---|-----------|--|
| Examiner Initial | Desig. ID | Document |
| | AOOOO | Tezuka et al., "Genetic cloning of a lymphocyte surface signal transduction molecule which induces an unknown adhesion phenomenon," PROCEEDINGS OF THE JAPANESE SOCIETY FOR IMMUNOLOGY, Vol. 24, Abstract No. W17-14 (1994) [ORIGINAL JAPANESE AND ENGLISH LANGUAGE TRANSLATION] |
| | APPPP | Tezuka et al. "Identification and characterization of rat AILIM/ICOS, a novel T-cell costimulatory molecule, related to the CD28/CTLA4 family," BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, 276:335-345 (2000) |
| | AQQQQ | Tomlinson et al., "The repertoire of human germline VH sequences reveals about fifty groups of VH segments with different hypervariable loops," J. Mol. Biol. 227(3):776-98 (1992) |
| | ARRRR | Wall "Transgenic livestock: progress and prospects for the future" THERIOGENOLOGY 45:57-68 (1996) |
| | ASSSS | Wang et al., "Costimulation of T cells by B7-H2, a B7-like molecule that binds ICOS," BLOOD, 96(8):2808-2813 (2000) |
| | ATTTT | Yoshinaga et al., "T-cell co-stimulation through B7RP-1 and ICOS," NATURE, 402:827-832 (1999) |
| | AUUUU | Yoshinaga et al., "Characterization of a new human B7-related protein: B7RP-1 is the ligand to the co-stimulatory protein ICOS," INTERNATIONAL IMMUNOLOGY, 12(10):1439-1441 (2000) |

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|--|-----------------|
| Examiner Signature | Date Considered |
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